UNITED NATIONS

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Economic and Social Council

Distr.
GENERAL

E/1990/86
22 May 1990
ENGLISH
ORIGINAL: ARABIC/CHINESE/
ENGLISH/FRENCH/
RUSSIAN/SPANISH

Second regular session of 1990

INTERNATIONAL CO-OPERATION IN THE FIELD OF INFORMATICS

Note by the Secretary-General

1. At its second regular session of 1989, the Economic and Social Council considered the question of co-operation in the field of informatics on the basis of a note by the Secretary-General transmitting a letter dated 19 December 1988 addressed to him by the Director-General for the United Nations Educational, Scientific and Cultural Organization (UNESCO). By its decision 1989/179, the Council took note of decision 7.1 adopted by the Executive Board of UNESCO at its one hundred and thirty-first session. Subsequently, at its organizational session for 1990, the Council decided to include the question of international co-operation in the field of informatics in the agenda of its second regular session of 1990.

2. The Secretary-General has the honour to transmit herewith to the Economic and Social Council the report prepared by UNESCO in consultation with the International Telecommunication Union (ITU) and the United Nations Industrial Development Organization (UNIDO).

Annex

INTERNATIONAL CO-OPERATION IN THE FIELD OF INFORMATICS

Report prepared by the United Nations Educational, Scientific and Cultural Organization in consultation with the International Telecommunication Union and the United Nations Industrial Development Organization

INTRODUCTION

1. More than ever before there is the necessity to promote the growing interdependence of nations in the world. This can be readily recognized in connection with the sectors of trade, natural resources, transportation, environmental impact, human migration and communication. For Informatics which uses the computer for data processing, storage and transfer, the importance of international cooperation is very evident when one considers the magnitude, variety and complexity of information required for modern existence and progress, together with the fact that technological advancement can be safely based on general consensus generated by general participation. The multi-disciplinary nature of Informatics coupled with its multivarious applications call for the cooperation which the international community has the responsibility to sustain.

2. There is every reason to believe that Informatics is contributing to an upheaval comparable to technological revolutions like the agrarian revolution and industrial revolution already experienced by mankind, and which marked profoundly the period during which they occurred. Undoubtedly one of the most eloquent signs of this is the establishment that we are witnessing today of a planet-wide information and communication network based on the linking of computers with telecommunications, opening immense prospects for human relations. This amounts to a veritable explosion of new possibilities extending to every field of social activities, and its effects are yet to be properly comprehended. Though a silent upheaval, nonetheless, it has the potential of being as radical as the invention of writing by the extension it provides for our memory, the transformation it is making in our information systems, the enhancement it is according our intellectual capacity, and by the modifications that it heralds in our modes of organisation and communication.

3. A principal challenge for the years ahead within the context of the accepted goal of peaceful co-existence will be to harmonize the realities of independent countries on the one hand and interdependent efforts and programmes on the other, in such a manner that peaceful cooperative interaction dedicated to the principles of equity and social justice for all becomes possible and effective. In this context, the area of international cooperation in Informatics deserves special attention in view of the increasing interdependence and important transnational interactions in all phases of the field.

4. Granted that some nations are far ahead of others, Informatics is nevertheless a developing domain. Thus, since it can be said that all nations are developing by virtue of the widely expanding applications and the dynamics of the state-of-the-art in this domain, there is an obvious value in cooperation and mutual exchanges of experience, know-how and technical information. In addition, the special needs of technical assistance to, and cooperation with, and among the less developed countries is of great urgency if they are also to profit from the contribution of Informatics to their development. Finally there is the area of standardization, collaborative research and development, education and training, technology transfer and acquisition, joint undertakings, and exchange of information where international cooperation is deemed essential to assist in orderly and effective development for common good.

5. Of course, the international community had seen the need for international cooperation in Informatics be it bilateral or multilateral. What is presently at stake is the requirement to reinforce and extend such cooperation.

6. It is obvious that Informatics is an exceptionally useful tool for economic and social development, and as it has turned out, also for technological advancement. The progress made in the fields of micro-electronics and telecommunications, and the resulting rapid development of all the technics of Informatics, have led in the space of a few years to the extension of the applications of Informatics to all areas of activities in society. The opportunities it offers for acquisition, processing and communication of information necessary for progress both in know-how and in knowledge make Informatics the foremost instrument of the technological revolution as the twentieth century draws to a close.

7. In its role as a vector of development, Informatics might have provided the developing countries with a means of improving and bringing down the cost of resources management making the most of their potentials and increasing their economic output, like in the industrialized countries. As it happened, this occured in only few cases.

8. Just as Informatics has been assimilated and integrated into development process in the industrialized countries, so it seems that most of the developing countries have been unable to exploit its capacity due to both paucity of resources and shortage of qualified personnel. It is quite clear that in default of action this situation may worsen still further in the near future, as may be seen from the growing lead taken by the indsutrialized countries in the fields of computer and telecommunication technologies.

9. These prospects necessarily compound the concern caused by the impact of technological development on economic imbalances. It is vitally urgent to remedy this situation by large-scale practical and effective action. Launched by the United Nations, action should be of a kind to interest and involve not only governments but also governmental and non-governmental international organizations as well as producers of technology. The decisions to be taken with a view to reviving internationl cooperation in the field of Informatics and its attendant technologies should be based on past experience, present-day reality, the importance of the issues at stake, the economic situation and its resulting power relationships.

SIGNIFICANT DATES AND FACTS

10. 1946: Recognizing the importance of science for progress, the United Nations Economic and Social Council recommended the establishment of international scientific organizations to ensure its promotion at the international and national levels.

11. 1951: Informatics, then in its infancy, was perceived as a scientific discipline, and the computer as a calculating instrument for scientists. Given responsibility for the development of science, Unesco studied the possibility of setting up an international computation laboratory. The Convention for the Establishment of the International Computation Centre (ICC) was adopted on 6 December 1951.

12. 1961: The Convention for the Establishment of the International Computation Centre came into force on 28 November 1961. Unlike the other scientific disciplines for which Unesco was directly responsible and which were of benefit to all its Member States, informatics was entrusted to a specific intergovernmental organization to which it was necessary for States to accede and pay contributions in order to benefit from its services.

13. 1964: With 12 Member States, the International Computation Centre became operational in 1964. Its Headquarters was in Rome. Even at that stage resources were so limited that the Centre confined its attention to graph theory and operational research, although its function was to supply scientists with calculation tools.

14. 1969-1973: As informatics got into its stride and its economic importance became increasingly obvious, the industrialized countries lost interest in the International Computation Centre. The Centre then gradually became the Intergovernmental Bureau for Informatics (IBI), taking the form of a real instrument for international co-operation in informatics, as specified in its constitutive convention. Unfortunately for IBI, the limited number of its Member States, most of them developing countries, and especially the absence of the main industrialized countries in a position to finance its activities, prevented it from playing its full role and attaining the objectives it had set itself.

15. 1978: Noting that the situation was continually worsening to the detriment of the developing countries both in the economic field and in that of informatics, Unesco and IBI decided to organize jointly an international conference on strategies and policies for informatics. The aim of that meeting was to arouse greater awareness of the subject in the international community and to promote a new era of co-operation that would take greater account of the needs of the developing countries as regards the use of informatics as an instrument for development. At the SPIN Conference (Torremolinos, Spain), 76 participating States drew up 44 recommendations, addressed not only to the United Nations but also to international organizations and governments.

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16. Unesco and the Intergovernmental Bureau for Informatics (IBI) were requested in particular to take measures in order to:

(a) assist in the establishment of national overall or sectoral informatics plans and of appropriate institutional structures;

(b) facilitate the development of industrial policy, especially as regards maintenance facilities, and to promote a commercial code of ethics;

(c) study the socio-economic and socio-cultural effects of the introduction of informatics;

(d) promote the education of specialists, users, and even the general public;

(e) contribute to the exchange of experience among countries and to the circulation of documentation on available products and services;

(f) facilitate the standardization of hardware and software so as to encourage competition among suppliers;

(g) draw up classifications, promote the establishment of international instruments, especially regarding the transnational flow of information, and make information stocked in data bases accessible.

17. 1979-1984: This period was undoubtedly the most productive in the field of multilateral co-operation in informatics. The SPIN Conference served both to show up weaknesses and to stimulate co-operation. A revision of the scale of contributions gave IBI a larger budget for each biennium (between US $30 and 40 million). At the same time, the number of member countries rose to some 40, though with only three industrialized countries (France, Italy and Spain) providing nearly 90 per cent of resources. IBI then successfully carried out useful field surveys, conducted sectoral studies, provided assistance and advice on informatics plans to many developing countries which were members of IBI, and encouraged operations for the transfer of technology between industrialized and developing countries which were also members of that organization.

18. It was during this period that Unesco included informatics as one of its programme activities. Designed to complement the programme of IBI, Unesco's programme was geared to training in informatics, the strengthening of training and research structures and the introduction of informatics into the education system, particularly in science teaching. The degree of success of Unesco and IBI was such that they even envisaged convening a further SPIN Conference with a view to taking stock of co-operation in the field of informatics and establishing a new approach strategy taking the new situation into account.

19. However, IBI's financial situation was only superficially satisfactory. Its weakness resulted from the fact that only three industrialized countries financed its budget. In addition, the limited number of its Member States prevented it from giving its activities the geographical coverage which would have been possible for an organization of a universal nature. On Unesco's side, the limited budget allocated to its informatics programme did not allow it to undertake the large-scale activities required by the situation. It was therefore considered possible that a further SPIN Conference might give rise to the establishment of a true United Nations specialized agency for informatics, on the lines of the existing agencies, with informatics becoming as strategic a concern as health, agriculture or telecommunications.

1984-1988 The end of the Intergovernmental Bureau for Informatics

20. IBI was unable to overcome the many difficulties which it had to face. These included its own rapid growth and its inability either to adapt its programme to new economic and political realities or to establish a sound system of management which would take account of requirements as they arose and the very diverse needs of its Member States. From 1985 onwards, the number of withdrawals and notices of withdrawal increased gradually placing IBI in an extremely precarious position. After the withdrawal of France, the withdrawals announced by Spain and later Italy deprived IBI of all its resources. The Organization's liquidation began in 1987. Since there was no prospect of its activities being revived, its dissolution became unavoidable, and this was pronounced by the General Assembly of Member States at the extraordinary session it held in Rome on 28 and 29 November 1988.

The birth of the Intergovernmental Informatics Programme

21. Rather than the rapid growth which was a feature of IBI, Unesco preferred a longer period of gestation and a programme more modest in scope but more in line with the means that Unesco could allocate to informatics. In response to requests from its Member States, some 30 of which were also members of IBI, Unesco set in train a study on an Intergovernmental Informatics Programme (IIP). An Interim Committee consisting of 33 Member States, elected by the General Conference on the basis of balanced regional representation, designed the content of the programme, determined its methods of action and established its main forms of financing and management. This programme carried on from, and reinforced the one launched in 1978 after the SPIN Conference.

22. Unesco thus attempted through the IIP to take up the challenge of multilateral co-operation in the field of informatics. The programme covered a wide field and included the main concerns of the developing countries, ranging from training to industrial prospects. On the threefold basis of TRAINING - RESEARCH - DEVELOPMENT, the IIP gave priority to the human element. Five priority fields of action were selected in the first stage:

- training for all age groups and at all levels;

- telematics networks and access to data banks;

- development, production and adaptation of software;

- support for the development of informatics applications;

- assistance in the preparation of national informatics strategies and policies.

23. As regards methods of action, the Intergovernmental Committee of the IIP recommended flexible structures based on national committees or focal points, with the Intergovernmental Committee providing guidance, its Bureau acting as the executive body and its Secretariat ensuring liaison among all concerned. In view of the financial limitations, the IIP was not planned as a financing body but as a catalyst. It set itself the aim of promoting, organizing, supporting and planning major regional and multilateral projects which by their nature would find it easier, once they were approved by the IIP, to obtain both outside sources of funding and financial support for their launching.

24. It should be noted that other organizations with no specific informatics programmes participate in co-operation in the field of the applications of informatics or vocational training. This applies, for example, to the World Health Organization (WHO) and the International Labour Office (ILO). For some years now the United Nations Industrial Development Organization (UNIDO) has co-operated in activities connected with the informatics industry and the production of equipment. Among non-governmental organizations, the International Federation for Information Processing (IFIP), in whose establishment Unesco participated in 1959, plays an important role in supplying specialists and users with information through the many conferences it organizes. Unesco actively supports the Federation's activities and facilitates the participation therein of information specialists from the developing countries.

THE SITUATION AS IT IS, FUTURE TRENDS AND PROSPECTS

Challenges and consequences of the progress of informatics

25. Informatics technology is becoming the driving force behind productivity. Its appropriate, or inappropriate, use has serious repercussions on the competitivity of agriculture and industry, the efficacity of the tertiary sector, the cost and quality of education, defence potential and the ability to innovate in both the economic and the social fields.

26. Informatics provides an instrument for the modelling, design, development and management of technical and research projects of growing scope and complexity. It is also instrumental in the operation of complex interactive networks within a given society or among several countries. It thus gives rise to structural changes, not only in the production and service sectors and in their corresponding job structures, but also in the conditions governing the activity of these sectors.

27. The effects of advanced technologies, especially informatics, on the social and cultural context are subjects for concern in nearly all countries. Taken in conjunction, the technologies of information, telecommunications and of audio-visual communication all raise the problem for society as a whole of preserving the diversity of cultures and the advantages of intercultural dialogue and, for the individual, that of preserving the benefits of conviviality in the family and in different social groups.

Inequalities in the dissemination and mastery of informatics

28. The early realization by the industrialized countries of the economic consequences of the use of informatics is reflected in its widespread use in these countries, where the value of the computer population has attained or exceeds 2 per cent of their gross national product: 95 per cent of all installed computers are to be found in them, as compared with 3.3 per cent in Latin America, 1.6 per cent in Asia and less than 0.5 per cent in Africa.

29. This realization also took place in many developing countries, but at a much later date. In addition, in a number of these countries, it proved impossible to develop informatics due to the inadequacy of human and material resources, the existence of other essential priorities, the weakness of the production and management activities that create a demand for data processing, the poor standard of telecommunications equipment, the lack of the appropriate scientific and technological environment and also of the structures and skills needed for large-scale action to train specialists or users.

30. In a market dominated by a small number of firms, the industrialized countries which were technology exporters made great efforts, either individually or in co-operation, to strengthen the research and development and industrial production sectors, including informatics-related services. These countries then attained a high degree of mastery in the preparation of software programmes, and acquired a substantial industrial capacity, even if they were still backward in certain types of advanced technology.

31. A small number of developing countries managed to acquire industrial expertise, either through subcontracting or as a result of a political decision. In the other countries, informatics products (hardware, supplies and sometimes software application programmes) are generally imported. This situation is aggravated by insufficient joint planning and co-operation among the developing countries themselves.

32. Imbalances in the mastery of informatics technologies and their dissemination occur not only between the industrialized and the developing countries but also between groups of countries both in the North and in the South, and sometimes among the different sectors of economic activity within a single country.

Working towards a society of knowledge

33. The conviction that the information technologies were the leaven of a metamorphosis of civilization was strengthened by the observation of many measurable phenomena. All human activities are now concerned by societies' capabilities to convert, process, stock and communicate information, linked with the progress of electronics, telecommunications and informatics. The

productivity of labour, the organization of government, different modes of consumption, education, morals and culture are being transformed. What is involved is not only the birth of a 'society of information and communication' but also the advent of a 'civilization of knowledge' which brings with it new skills, new ways of teaching them, and new patterns of behaviour.

The heterogeneous nature of the world

34. The abrupt leap forward caused by informatics has only widened the gap between those who are most advanced and those who are most deprived, with the result that, in a world that is becoming more and more heterogeneous, a large number of intermediary situations may be observed:

regions which have remained at the stage of an economy based on agriculture and crafts, frequently with raw materials as their only source of wealth: these comprise the 'developing' countries;

other regions whose state of development and outlook have long since brought them into the industrial era;

and lastly, a few countries constituting highly favoured areas of development, in which the most sophisticated technologies emerge and flourish, and in which practically all the means of producing these new technologies are also concentrated.

Outlook for the future: magnitude of the gaps

35. Some figures of magnitude should be borne in mind to gain a proper understanding of the scope of the problems to be tackled.

36. Of all expenditure on informatics and information technologies in general, 95 per cent is incurred in the industrialized countries and barely 5 per cent in the developing countries. This corresponds to the following approximate geographical distribution of production:

- North America	some 40 per cent
- Western Europe	20 to 25 per cent
- Japan and newly industrialized South-East Asian countries	20 to 25 per cent
- The rest of the world	20 per cent

37. The investments envisaged for the 1990s give a further idea of the size of the phenomenon:

	In thousands of US dollars
- world turnover figures for the producer industries and activities directly connected with information technologies	1,000 million
- evaluation of annual research and development activities	50 million
- evaluation of annual investments in new software	50 million

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38. The gaps noted at the production level are naturally reflected at the investment level. The industrialized countries devote between 3 per cent and 5 per cent of their GNP to informatics facilities, compared with less than 1 per cent for the developing countries. These gaps are accentuated by the fact that the cost of information is higher in the developing countries than in the advanced countries.

THE NEED FOR INTERNATIONAL CO-OPERATION

39. Ten years after the SPIN Conference, and despite the efforts made, there are still no answers to many of the problems raised. It should not however be inferred that the balance sheet of international co-operation is entirely negative. Some progress has been made, especially as regards awareness of the problem, since there is no longer any doubt as to the very close relationship between informatics and development. It is true that mistakes have been made, the greatest of which was probably that of giving priority to equipment and importing ready-made solutions to the problem of trained personnel, the only source of lasting progress.

40. The main objective today, more than ever before, is the constitution of endogenous potential through the development of existing skills. The main industrialized countries have practically attained this objective. Admittedly they started off from well-established scientific and technological bases, but it should be stressed that for purely economic, or sometimes political and economic reasons, they succeeded in pooling their resources. Whether in the West or in the East, the European countries united their efforts to undertake large-scale informatics projects, for in such a complex field of activity only a very few countries can expect to manage on their own. Examples in western Europe are the Eureka and Esprit projects, and in the eastern European countries the projects being developed in the framework of the Council for Mutual Economic Assistance (CMEA), not to mention the varied technological exchanges between multinational corporations and within certain highly industrialized societies such as Japan and the United States of America.

41. For their part the developing countries, faced with all sorts of problems, have to cope with a present situation fraught with difficulties and prepare for a future whose outlines are often uncertain. Only international co-operation can lead to positive developments.

42. One obvious fact needs to be emphasized again: the world is interconnected, the fate of each individual is the fate of all. Those who share a common destiny must have recourse to solidarity, which takes the practical form of co-operation. Co-operation is then the equivalent of Peace. That is the meaning of the Mexico City Declaration, signed by a large number of Heads of State and Government.

43. Properly used, informatics can provide opportunities for those who have mastered it. The enormous demographic growth of the South calls for a technical and organizational revolution in the production and distribution of wealth. Mastery of the new technologies can make young people the real source of wealth, in both the North and the South. The developing countries, whose human potential has increased in number and gained knowledge and experience, have the possibility of using informatics as a short cut towards economic development and greater well-being in a world in which competition has inescapably to be reckoned with.

THE FRAMEWORK TO BE SOUGHT FOR CO-OPERATION

44. IBI's unfortunate experience has shown that international co-operation in informatics, as in fact is the case in other areas, calls for a universal framework. All countries, large or small, rich or poor, industrialized or developing, must participate in action and reflection. However, nothing can be done, or well done, without the participation of the industrialized countries which have a mastery of informatics and conduct a profitable trade in it.

45. In addition, the effort of co-operation cannot replace a national effort; it must accompany it, promote it and make it succeed.

46. This being the case, the United Nations framework appears to be the most appropriate one from which to launch international co-operation in informatics "Given the multi-disciplinary nature of informatics and the experience gained from the efforts of IIP it is clear that inter-agency co-operation is the key to the development and dissemination of informatics technologies."

47. Three organizations are more specially concerned than the others by the development of the new technologies in general:

Unesco with regard to training, research and innovation;

ITU with regard to the development of telecommunications;

UNIDO with regard to the establishment of industrial processes.

48. The other organizations are users, developers and promoters of informatics specific to them which are of interest to the Member States.

49. A first step might be substantially to reinforce the means allocated to co-operation in each of the organizations dealing with informatics and its associated technologies.

50. In this process the role of Unesco would be primordial, since Unesco takes action at an earlier stage then the others: there is a universal need for specialists trained to undertake tasks and researchers equally well trained and equipped to make innovations. The work of training must be carried out as part of school and university curricula. Once they have personnel trained in informatics, the developing countries will be able to take action in important areas such as systems maintenance, the production of software and the development of new applications.

51. In countries with a need and potential, action in the hardware and sofware industry would be co-ordinated within UNIDO, whose special field this is. The revolution caused by the introduction of personal computers into daily life, especially the workplace has opened up a different 'educational dimension' Through the organization of seminars, workshops and study tours, industrialists can be made aware of the role informatics would play in their working environment, UNIDO assists developing countries: through the application of informatics in promoting its use in many technical assistance projects dealing with industrial processing. One of the most common methods is

the use of CAD/CAM systems. By providing access to the information resources, including informatics technology by developing and maintaining UNIDO information systems, UNIDO's technology information group is making its presence felt, not only in developing countries, but in industrialized ones as well. INTIB, TIES, etc, are just examples of such information systems. By establishing viable software industries that will respond to the needs of the local market place, by computer assisted learning at the industrial level UNIDO promotes and expands the use of informatics in industry.

52. There cannot be networks without communication inputs. In that respect, everything that ITU can do to improve the state of communications in the developing countries or that it can obtain by way of facilities for exchanges will be of advantage to informatics.

53. "The activities of UNESCO, UNIDO and ITU are complementary, and the IIP could serve as the nucleus for the development of co-operation. In current conditions, as much by its content as by the guarantees it gives for its methods of action and management, the IIP seems to be a possible centre for the revival of co-operation in informatics. Although, in the first stage, the IIP set itself the aim of strengthening the capacities of the developing countries through co-operation and active solidarity, thus responding to a clearly urgent need, it is nevertheless true that in the medium and long term this programme will benefit the entire international community. Where all organizations must come together and co-operate is on the gathering exchanging and disseminating of information".

54. By 23 C/Resolution 6.3 which it adopted at its twenty-third session, the Unesco General Conference strongly emphasized the usefulness of and need for regional and interregional co-operation and recommended that specially appropriate means should be allocated to it. It proposed that Member States:

1. ... should regard the Intergovernmental Informatics Programme (IIPO) as the basis for the development of international and regional co-operation;

2. ... should create national informatics committees to co-ordinate the development of co-operation by countries with each other and with Unesco in the field of informatics;

3. ... should view with favour the question of exchanging information, both with each other and with Unesco, on the development of informatics in their countries;

4. ... should develop bilateral and multilateral co-operation in the field of informatics, taking into account the activities of the IIP'.

55. The IIP is a programme of co-operation open to all organizations, whether regional or international, governmental or non-governmental, that could make an effective contribution to its implementation.

56. By decision 7.1 adopted at its one hundred and thirtyfirst session, the Executive Board of the United Nations Educational, Scientific and Cultural Organization (UNESCO) focused attention on international co-operation in the field of Informatics under the title, North-South co-operation in the field of Informatics. The decision is hereunder reproduced:

The Executive Board

1. Having examined the Director-General's report on North-South co-operation in the field of informatics (131 EX/22),

2. Having taken particular note of the decision concerning the dissolution of the Intergovernmental Bureau for Informatics taken by its General Assembly, and of the request made to Unesco to submit to the Economic and Social Council (ECOSOC) the problem of the necessary resumption and strengthening of North-South co-operation in the field of informatics,

3. Welcomes the fact that the Director-General has taken action on that request and has made the necessary moves to secure the inclusion of an item on that matter on the agenda of the session of ECOSOC to be held in July 1989;

4. Invites the Director-General to communicate document 131 EX/22 to ECOSOC and to inform the Council of the importance attached by Unesco's Executive Board to the role of informatics in modern society and to the development of international co-operation in this field;

Further invites the Director-General, in implementing the third Medium-Term Plan and the Programme and Budget for 1990-1991, to ensure that Unesco makes its specific contribution to such international co-operation, in close collaboration with ECOSOC, UNIDO and ITU and with relevant non-governmental organizations, fostering, particularly through the regular programme and the Intergovernmental Informatics Programme, the use and promotion of informatics as an instrument of development."

57. The twenty-fifth session of the General Conference of UNESCO following the one hundred and thirty first session of its Executive Board among other items approved the Programme and Budget for 1990-1991 for the Organization. As part of the programme, Informatics was given the importance that the resources available permitted. Thus it was programmed with a view to strengthening national capacities of developing countries, and regional and international co-operation mainly through: training of Informatics specialists, provision of study grants to young scientists for specialized training or research in Informatics, implementation of regional Informatics projects within the framework of the Intergovernmental Informatics Programme (IIP), and support to publications on Informatics and its applications.

58. The Economic and Social Council may wish to consider adopting a decision along the following lines:

The Economic and Social Council,

Taking note of the document submitted in respect of "Internaitonal Co-operation in the Field of Informatics".

Conscious of the importance of Informatics in the development of all countries,

Taking into account the role played by "international organizations" in promoting the development of Informatics for the benefit of all,

Recognising the need to reinforce international co-operation in this domain,

Recommends that:

" International organizations continue and, as much as possible, increase their efforts in the informatics activities particularly:

(a) UNESCO in the aspects of education and training research and development, studies and dissemination of information and promotion of international co-operation

(b) UNIDO assists member states, particularly developing countries in their effort of acquisition and development of informatics technology through research and development, studies and dissemination of information, establisment of appropriate industries in this domain and promotion of international co-operation.

(c) That ITU, more than ever before, make its expertise in the application of informatics to telecommunications available to member states including especially the developing countries.

(d) That all the efforts of UNESCO, UNIDO and ITU in the domain of informatics be appropriately co-ordinated with those of other members of the UN system through existing UN co-ordinating mechanisms."